

REPLACED BY
ART 34 AND 1Apparatus for measuring a small quantity of a liquid

The invention relates to an apparatus for measuring a small quantity of a liquid, for example, in connection with a medical diagnostic test, comprising at least one chamber for receiving the liquid, which chamber comprises a bottom and upright side walls and at least two electrodes to connect to a voltage source and a measuring system for determining the electrical impedance between the electrodes.

Such an apparatus is known from the international patent application WO96/24030 (PCT/US96/00611). The prior art apparatus possesses a chamber with side walls provided with electrodes. The drawback of this known apparatus, which is used, for example, for performing medical diagnostic tests on blood or the like is that the chamber for receiving the liquid has a rather large volume. This is a disadvantage since as a consequence such an apparatus, which is not only used for medical diagnostic purposes but is also applied in fine-chemical and pharmaceutical test arrays, uses large amounts of liquid. Such liquids as, for instance biochemical receptors, are costly, as a result of which it has long been endeavoured to make the type of apparatus described in the preamble smaller, especially in respect of the chamber volume. Such smaller volumes have the additional advantage of speeding up reaction rates of the liquids introduced into the apparatus, due to the reduced diffusion distances and the physical limitations inherent to a smaller chamber volume. Accordingly, the importance of precisely measuring the amount of liquid increases, as with (very) small test volumes small deviations will easily lead to inaccurate test results. With the miniaturization of the chamber that is part of such an apparatus, the problem arises that it is difficult to incorporate the electrodes into the side walls of the cham-